Original Research Article

FREQUENCY OF HELICOBACTER PYLORI INFECTION IN PATIENTS WITH CHRONIC DYSPEPTIC SYMPTOMS AT RAWAL GENERAL AND DENTAL HOSPITAL'S OPD

ABSTRACT

OBJECTIVE: Frequency of helicobacter pylori infection in patients with chronic dyspeptic symptoms visiting our patient department of Rawal General and Dental Hospital.

METHODS: This was a descriptive cross-sectional hospital based study conducted in the Department of Gastroenterology, Rawal General and Dental Hospital, Islamabad between the periods of two years June 2018 – June 2020 with in patients who presented with a chief complain of dyspepsia through a consecutive sampling technique. Baseline and clinical variables were collected and correlated with the presence and absence of *H*. pylori infection among 355 finally recruited participants.

RESULTS: The overall prevalence of *H*. pylori infection was 59.71% (n = 212). Among them, married males were more common. Positive *H*. pylori patients were younger than negative *H*. pylori patients, 40.24±6.62 vs. 44.9±8.05 (p 0.04). Participants who had a history of NSAIDS intake for past 7 days were significantly associated with positive *H*. pylori infection, 54.24% (n = 115), p 0.02. While on the other hands, patients who were receiving proton pump inhibitor for the past 4 weeks were significantly associated with absence of *H*.

pylori infection when they presented with chronic dyspeptic symptoms, 65.03% (n = 93), p 0.01.

CONCLUSIONS: Our study has found that almost two third of the population suffering from chronic dyspeptic symptoms had positive *H*. pylori infection and these patients are younger than *H*. pylori negatives. Chronic NSAID users have direct relation in increased prevalence of *H*. pylori detection while use of PPI plays safety role in prevention and reducing of *H*. pylori infection.

KEYWORDS: Chronic Dyspepsia, *H*. pylori infection, Risk factor, Pakistan

INTRODUCTION:

Helicobacter pylori (H. Pylori) infection is a gram-negative, microaerophilic, spiral (helical) bacterium, spreads through fecal-oral route and causes infection by invading the mucoid lining of the stomach. and is the most important cause of acute and chronic gastritis, 48.9% and 29.9%, respectively (1). The prevalence of H. pylori infection vastly varied among developing and developed countries and is surprisingly higher in developing countries, 85% to 95% vs. 30% to 50%, respectively. In a Pakistani study conducted by Mehmood K and colleagues (2) have observed prevalence of H. pylori infection ~~was~~ 88.3%. About 90% of people infected with H. pylori never experience any symptoms or complications however 10%-20% have risk of developing peptic ulcer later in life (3-5).

In the western world ~~there are~~ approximately 25% of the population experience dyspeptic symptoms each year. Dyspepsia is a diagnosis made based on the presenting symptoms of patients related to upper gastrointestinal tract. The overall incidence of dyspepsia caused by

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H. pylori infection is 13 per 1000 individuals (6). In an older study conducted in Pakistan has shown prevalence of dyspepsia 57% in patients infected with H. pylori infection (7). Symptoms in acute phase are acute gastritis with abdominal pain or nausea which can further develop into chronic gastritis and the symptoms are non ulcer dyspepsia, bloating and sometime vomiting. Pain is usually at empty stomach, early morning or between meals. Individual with chronic H pylori infections are at high risk of developing adenocarcinoma of stomach (8-10). Therefore, sometimes, chronic dyspepsia and long standing presence of *H.* pylori infection may be alarming sign for underlying other serious conditions such as carcinoma of the stomach or esophagus that is why timely identification of risk factors and prompt management may reduce the burden of such diseases and also improves overall patient's quality of life.

PATIENTS & METHODS:

This was a descriptive cross-sectional hospital based study conducted in the Department of Gastroenterology, Rawal General and Dental Hospital, Islamabad between the periods of two years June 2018 – June 2020 with in patients who presented with a chief complain of dyspepsia through a consecutive sampling technique. The Hospital Ethical Committee approved the study, and all the patients provided written informed consent.

Rawal General and Dental Hospital, Islamabad is a tertiary care teaching hospital and covered a surrounding population of more than 3.1 million for expert management. All the patients presented in out-patient-department (OPD)/admitted in the department of gastroenterology with chronic dyspepsia and with age more than 18 years to 80 years of either gender were enrolled under this study. Patients with alarming symptoms such as weight loss,

haematemesis, uncontrolled and persistent vomiting were excluding from our study. The diagnosis of chronic dyspepsia was made based on the signs & symptoms patients presented with such as pain or burning in the stomach, bloating, excessive belching, or nausea after meal. The decision regarding further management was made by the attending consultant and all the patients were then advised stool antigen test for the detection of *H*. pylori infection.

Baseline demographic and clinical characteristics such as age, gender, marital status, occupation, area of residence (urban/rural), social class, education level, addiction to cigarette or alcohol, use of non-steroidal anti-inflammatory drug, use of anti-biotic (>7 days), use of proton pump inhibitor, clinical manifestations (epigastric pain/burning, postprandial fullness, and early satisfaction), and detection of H. pylori infection in stool.

Statistical package for social science SPSS version 22 was used for data entry and final analysis. Chi-square test/fisher's exact test was used for comparison between categorical variables while independent *t*- test was used for continuous variables.

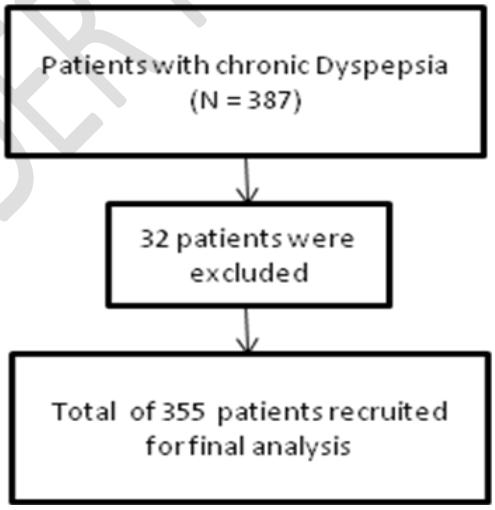

Figure 1: Recruitment flow chart

RESULTS:

A total of 355 patients were recruited (see Figure 1) for final analysis with a mean age and SD was 40.34±9.14 years. Overall, males were predominant 57.74% (n =205). Presence of *H*. pylori infection was detected more frequently (n = 212, 59.71%) in patients with chronic dyspeptic symptoms and surprisingly, positive *H*. pylori patients were younger than negative *H*. pylori patients, 40.24±6.62 vs. 44.9±8.05 (p 0.04), respectively. In both groups, more than 60% of the participants were married and more than 70% of the study participants were urban dwellers. Table 1.

Considering the risk factors, there was almost similar percentage of patients who had addiction to cigarettes in *H*. pylori positives and negatives, 31.13% and 30.06%, respectively. Consumption of alcohol was more common in H. pylori negatives than positives, 69.93% and 19.81%, respectively. However, risk factors did not have any significant relation with *H*. pylori infection in chronic dyspeptic patients, p >0.05. Table 1.

Participants who had a history of NSAIDS intake for past 7 days were significantly associated with positive *H*. pylori infection, 54.24% (n = 115), p 0.02. While on the other hands, patients who were receiving proton pump inhibitor for the past 4 weeks were significantly associated with absence of *H*. pylori infection when they presented with chronic dyspeptic symptoms, 65.03% (n = 93), p 0.01. Table 1

Epigastric pain/burning and nausea/vomiting were the most common clinical manifestation observed in patients who presented with chronic dyspeptic symptoms and had positive *H*.

pylori infection, 96.86% and 64.62%, respectively. While, eighteen patients (8.49%) also had a history of weight loss. Graph. No. 01.

DISCUSSION:

Presence of *H.* infection in globally common in patients who experience symptoms of dyspepsia but patients with chronic dyspeptic symptoms are usually already on proton pump inhibitors hence based on this hypothesis, frequency of *H.* pylori infection should be lower than those who presented in acute stage of dyspeptic symptoms. The overall prevalence of *H.* pylori infection in our study participants who presented with dyspeptic symptoms was surprisingly higher 59.71% which is quite high when comparing the data with patients who presented during acute phase of dyspeptic symptoms (36%) (11). Also, the prevalence of H. pylori infection is comparatively lover in industrialized countries than developing countries like Pakistan because of multiple reasons such as poor sanitary conditions and also widespread use of antibiotics (12-15).

The effect of age on the prevalence of *H. pylori* is one of the best-documented and least disputed aspects of *H. pylori* epidemiology. In our study, presence of *H.* pylori infection was detected at an early age as compared to those who were *H.* pylori negative and presented with dyspeptic symptoms. Our findings are consistent with the previously conducted studies (16-18). In a systemic review conducted by Bardhan PK from 14 developed and 24 developing countries clearly mentioning presence of *H.* pylori infection at an early age in developing countries as compared to developed countries (19). Another review study conducted by Muhammad JS and colleagues (20) in Pakistan and data extracted from all South Asian countries has observed younger age group more frequently infected with *H.* pylori infection.

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Our study participants who were taking NSAIDS for more than 7 days and presented with chronic dyspeptic symptoms were significantly (54.24%, p 0.02) had positive H. pylori infection as compared to those who were not taking NSAIDS or took occasionally. It is already proven that NSAIDS are linked with peptic ulcer disease but some of the previously conducted studies (21, 22) also showed positive relation between *H*. pylori infection and presence of dyspeptic symptoms those who are taking NSAIDS as observed in our study. While, a Chinese study has shown higher prevalence of *H*. pylori infection in NSAIDS users than non- users (23). Also, we have found that use of PPI has negative relation with the occurrence of *H*. pylori infection even in the presence of chronic dyspeptic symptoms. A study conducted by Matsukawa Y et al. (24) have observed high prevalence of *H*. pylori infection those who were taking NSAIDS and without gastric ulcer. Through this study we have observed a relationship of *H*. pylori infection with chronic dyspepsia and explored what other possible risk factors relate positively and negatively.

Our study has certain limitations which should be addressed in further studies such as, our study was a single center study and data collected from this center can not reflect whole Pakistani population. Secondly, we are unaware of the chronic dyspeptic symptoms underlying cause like, whether these symptoms are due to chronic NSAIDs usage or due to positive *H*. pylori infection, that should be evaluated separately in future studies.

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CONCLUSION:

Our study has found that almost two third of the population suffering from chronic dyspeptic symptoms had positive *H*. pylori infection and these patients are younger than *H*. pylori

negatives. Chronic NSAID users have direct relation in increased prevalence of *H.* pylori detection while use of PPI plays safety role in prevention and reducing of *H*. pylori infection.

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Table No. 01: Baseline characteristics of study participants with respect to presence and absence of *H.* pylori infection

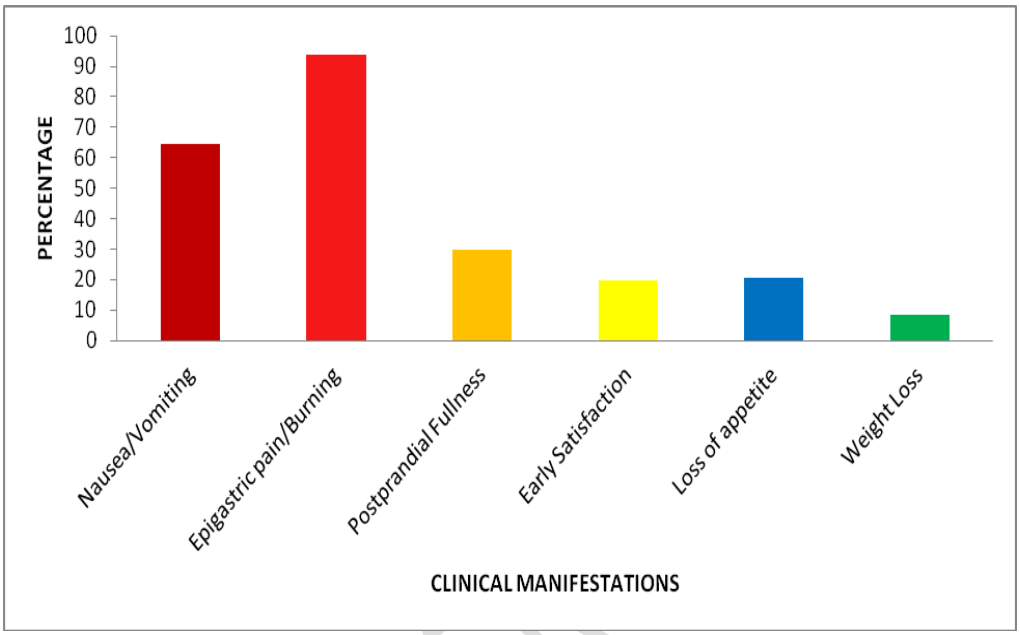
(n = 355)

Baseline variables	H. pylori Presence	H. pylori Absence	p value
	(n = 212)	(n = 143)	
Age – Years			
Range	18 - 80	18 - 80	
Mean±SD	40.24±6.62	44.9±8.05	0.04*
	N (%)	N (%)	
≥18 - <40	111 (52.35)	52 (36.36)	0.01*
≥40 - ≤80	101 (47.64)	91 (63.63)	
Gender			
Male	130 (61.3)	75 (52.44)	0.08

Female	82 (38.6)	68 (47.5)	
Marital Status			
Single	70 (33.01)	42 (29.37)	0.82
Married	134 (63.20)	90 (62.93)	
Widowed	8 (3.77)	11 (7.69)	
Area of Residence			
Urban	153 (72.16)	102 (71.32)	0.34
Rural	59 (27.83)	41 (28.67)	
Social Class			
Low	50 (23.58)	38 (26.57)	0.22
Middle	99 (46.69)	73 (51.04)	
Upper	63 (29.71)	32 (22.37)	
Education Level			
Illiterate – Primary	18 (8.49)	12 (8.39)	0.18
Secondary	54 (25.47)	35 (24.47)	
≥Graduate	140 (66.03)	96 (67.13)	
Addiction			
Cigarette	66 (31.13)	43 (30.06)	0.77
Alcohol	42 (19.81)	100 (69.93)	
Drugs			
Use of NSAIDS (>7 days)	115 (54.24)	40 (27.97)	0.02*
Use of Anti-biotics (> 7 days)	12 (5.66)	10 (6.99)	0.44
Use of PPI	9 (4.24)	93 (65.03)	0.01*

GRAPH NO. 01: DISTRIBUTION OF CLINICAL MANIFESTATION IN PATIENTS WITH POSITIVE H. PYLORI INFECTION

(N = 212)


100
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PERCENTAGE
Nausea/Vomiting
Epigastric pain/Burning
Postprandial Fullness
Early Satisfaction
Loss of appetite
Weight Loss
CLINICAL MANIFESTATIONS